Shropshire Botanical Society

Newsletter

Spring 2022

Shropshire Botanical Society Newsletter No. 44

Contacts

Newsletter Commissioning Editor:
Andrew Perry
email: andrew.perrynt@gmail.com

Secretary: Penny Wysome, 2 Christine Ave., Wellington, Telford, TF1 2DX. Tel. 01952 242617, email: pennywysome@yahoo.com

Membership Secretary: Martin Godfrey
Enquiries to: mfgodfrey49@gmail.com

Vice-county Recorder: Sarah Whild, 9 Albert Street, Shrewsbury, SY1 2HT.
Email: sarah.whild@bsbi.org

Past copies of the newsletter are available as pdfs from the Shropshire Botanical Society website: http://www.shropshirebotany.org.uk

Contents

Society News – notes from the Editor
Andrew Perry 3

What's the point?
Penny Wysome 5

Aquatic macrophytes of Newport Canal SSSI
Mags Cousins 7

Broomrapes in Shropshire
John Handley 12

Restoring Shropshire's Verges Project - RSVP
Peter Carty, Chair RSVP 16

Identiplant
Sue Dancey 18

Front Cover:

Orobanche rapum-genistae Greater Broomrape (Vicky Munro)

Our thanks to the Shropshire Wildlife Trust and the Field Studies Council for their generous support of our society. Both organisations support the work of the society in recognition of the importance of the contribution we make to understanding Shropshire botany.

Society News – notes from the Editor

Andrew Perry

It was a shame that we were unable to meet in person for our winter meeting, but it was good to see many of you join us online, and a big thank you to Dr Fred Rumsey for a fascinating talk with some beautiful photos of the *Orobanche*. John Handley is continuing the theme of Broomrapes in this edition of the newsletter, with a look at *Orobanche* in a Shropshire context.

Spring meeting

Our next gathering will be our spring meeting which will be held on Saturday 9th April, and we'll have an illustrated talk by John Martin on "Arctic-Alpine Plants in Britain". John will give us a general introduction to British mountain plants and a Cook's Tour of some nice Arctic-Alpine sites and plants. We hope to hold the meeting in person at FSC Preston Montford (SY4 1DX).

John was the National Vascular Plant Specialist at Natural England until he retired in 2019, giving him more time to pursue his many wildlife interests. As well as doing plenty of botanical recording in Shropshire, he is the County Bird Recorder and has a strong interest in invertebrates, particularly Diptera. He was born in Stoke and now lives in Shrewsbury with his wife Janette.

The spring meeting will also involve some brief committee business; we're sorry to say that Mags will be stepping down as our chair and so the election of a new chair will be on the agenda. Mags has done an excellent job of leading the Society – thanks for all your hard work! Nominations for Chair are to be received two weeks before the AGM.

Penny would be delighted to hear from any volunteers who could bring a cake.

Field Meetings Programme 2022

Saturday 23rd April. Loam Hole Dingle and Ropewalk Meadow, Coalbrookdale (SJ 6674 0476). Meet in Museum car park at 10:30am. Parking is £5 for the day although there is limited free parking locally. The day will focus on Hilary Wallace's fantastic new FSC vegetative grass identification handbook. We'll look at a range of grass species and use vegetative characters to identify them. Lots of stops along the way, although there is a strenuous climb up a set of steps before lunch in the meadow. Contact: John Handley, 07507 054695, johnhandley11@gmail.com

Sunday 1st May. Lyth Hill. Meet at 10:00am. Meeting place is at the car park at (SJ 472 068). We hope to explore both the woodland of Spring Coppice and the species-rich grassland to the south of the coppice. There may still be some spring ephemerals near the car park to find. For further information please contact Dan Wrench, 07718391794, danwrench@gmail.com

Sunday 22nd May. Secret Hills Discovery Centre. Meeting at 10-12.30pm in the car park (SO 43478 82502). The meeting is joint with the Centre and will combine training and recording, especially grasses of the hay meadow, river floodplain and damp woodland. The morning will be led by Mags Cousins and we are aiming to provide the centre with a more complete species list and a botanical training opportunity for their volunteers and Botanical Society members. Booking is necessary through the Centre, either book at reception or call Tammy Shurmer on 01588 676060, email: Tammy.Shurmer@growcooklearn.co.uk. There are good facilities with toilets, shop and cafe and easy access paths.

Sunday 12th June. Llanymynech (SJ 27075 21943). Meet at 10.00am in the Shropshire Wildlife Trust car park, at the end of Underhill Lane from Pant. A popular reserve with species rich Carboniferous limestone grassland and woodland. The path is a bit steep, rocky and can be slippery in places. Joint with the Wildflower Society. Contact: Mags Cousins, 07873 532681, mags@bagbatch.co.uk

Saturday 18th June. Melverley Meadows SWT Reserve (SJ 33580 18197). Meet at 11am, some parking is available on the edge of the reserve, some roadside. North of the village of Ash Magna, post code SY13 4 EA. The site has a series of

interlinked flower-rich hay meadows where *Ononis spinosa* Spiny Restharrow has been recorded. For further information please contact Penny Wysome, 01952 242617, pennywysome@yahoo.com

Sunday 26th June. Stevenshill, Cound. Meet at 10:00am. Meeting place is at Cound Church at (SJ 557 049). Parking is on the roadside near the church. There's a 15 minute walk south up the Coundmoor Brook before we get to the right area to start recording. We hope to find *Atropa belladonna* Deadly Nightshade, *Draba muralis* Wall Whitlowgrass (you may need to look this up) and *Dipsacus pilosus* Small Teasel - amongst other things. For further information please contact Dan Wrench, 07718391794, danwrench@gmail.com

Saturday 2nd July. Cudwell Meadow (SO44949313). Meeting at 10.00am in the Cemetery Road lay-by, off Ludlow Road, Church Stretton, near SY6 6AA. There are limited parking spaces in the lay-by. We will start by recording a meadow that is being restored by the Stretton Wetlands Interest Group (as featured in our Spring 2021 newsletter). Following this, we will explore some marshy grassland in another part of the 'Stretton Wetlands' nearby. Wellies recommended! Contact: Andrew Perry, andrew.perrynt@gmail.com

Sunday 7th August. Novers Hill, Long Mynd (SO 45596 95515). Meet 10.30am in the National Trust parking area in Batch Valley, All Stretton (you'll need change for ticket machine). We'll explore the species-rich flushes on Novers Hill, going further up Batch Valley, time allowing. Footpath climbs the hill but it is not far. Mags Cousins and Martin Godfrey leading, joint with the Wildflower Society. Contact: Mags Cousins, 07873 532681, mags@bagbatch.co.uk

Invitation to Shropshire Botanical Society members to join the Wild Flower Society Members' Weekend Field Meetings 3rd – 5th September 2022.

We have received the following invitation and request from Sheila Wynn of the Wild Flower Society:

"This year our WFS AGM and Members' Weekend will be based at Preston Montford Field Studies Centre and we will be holding field meetings in the area. As there are usually about 50 WFS members attending, we split up into several groups for these meetings.

While we have WFS members who can lead the groups, they aren't all familiar with the area, so we would be very grateful if any of you who know the sites would be willing to help.

On the morning of Saturday 3rd September we have a short field meeting of approximately 2 hours. As we don't want to travel far, Sue Dancey has offered to lead one group around Preston Montford grounds, but I would welcome suggestions of other places nearby for other groups to visit.

On Sunday 4th September, we plan to visit Llanymynech Rocks in the morning, followed by sites on the Montgomery Canal in the afternoon.

On Monday 5th September, we will visit Ironbridge, where Martin Godfrey will lead a fern walk in Benthall Edge Woods and Kate Thorne will lead a flatter walk from Benthall Hall Car Park.

If anyone would be willing to assist the leaders on Saturday morning or Sunday, morning or afternoon, it would be much appreciated. If you would just like to take part in a meeting, you would be very welcome. Let me know if you are interested in helping or attending and I will send you details of meeting times and places once they have been finalised.

I look forward to meeting you.

Sheila Wynn (WFS General Secretary) wfs.gensec@gmail.com"

What's the point?

Penny Wysome

Over the last 12 years I have spent a lot of time and energy volunteering with the Wildlife Trust. Some of this has been monitoring plants in woodlands, grasslands, mires and moors, and some has been practical work trying to maintain these habitats, often working against the relentless drive of succession. I have hugely enjoyed both activities, they are collaborative, they take place in lovely places with very congenial like-minded company and provide opportunities to learn both knowledge and skills. Recently I have begun to think about whether it is self-indulgent of me to think I might be doing something useful, perhaps the benefit is largely to my physical and mental welfare and I am just part of a King Canute type exercise which is bound to fail in the face of the march of broad-leaved woodlands, or the demands of developers for land.

Considering the current emphasis on Climate Change and Biodiversity, does anything done on a small scale in Shropshire actually have any impact? Like most of the United Kingdom our land has been massively interfered with over many centuries, to such an extent that we don't have a natural environment. Rewilders looking to recapture a wood-pasture environment are going back a very long way for their natural world; ceramic cows are more common than aurochs these days, especially in Milton Keynes. We do have green spaces but many are in some kind of transition. Conservation can often be a way to try and keep one particular stage of transition, but is this sensible?

We have quite a few limestone quarries in the county. If left alone they gradually become woodland, until recently often *Fraxinus excelsior* Ash woods, what will replace these remains to be seen. The beautiful tapestries of flowers which colonise open limestone grasslands gradually disappear. Holding back the succession to conserve

Fig. 1. Hunting for *Spiranthes spiralis* Autumn Lady's Tresses at Llanymynech (photo and copyright Eric Steer)

these communities of plants is a continual struggle involving indefinite commitment of resources. Managers of reserves are constantly assessing what can be afforded, and making choices about which small communities can be maintained, and which will have to be abandoned to natural processes.

There are ambitious plans nationally and locally to try and link small plant communities to increase their genetic variability and hopefully their distribution but we are still looking at very small areas. On our little island this will have a minute impact on global diversity. Our tree planting efforts are also too small to have much effect on the global carbon dioxide levels. Farmers are being encouraged to co-exist with wildlife and to improve soil structure for more effective carbon capture but again, this is still a very small contribution to the global effort. Might we be better off investing our resources in large areas in other countries where more significant changes could be made?

This somewhat defeatist attitude can be challenged. As a biologist I was well taught by ecologists in the 1960s who were shocked by Rachel Carson's Silent Spring. I do understand how intricate ecosystems are and how all components, physical and biotic, interact. The intricate inter-dependence of the ants and *Plebejus argus* Silver-studded Blue butterfly on Prees Heath is just one local example. Much expertise, energy and resources have been invested in protecting this community. Before hanging up my clipboard and my billhook and letting succession take over where I have been so busy, I might be able to convince myself that there is a point in fighting to preserve the valuable pockets of priority habitats in our beautiful county. Perhaps preserve is not the right word. We are not going to keep these the same – it's not like making jam where the product is sealed into a glass jar. Ecosystems evolve and so perhaps we can offer some of ours the chance to continue doing so.

Fig. 2. *Lysimachia tenella* Bog Pimpernel and *Pinguicula vulgaris* Common Butterwort on Catherton Common (photo and copyright Eric Steer)

If these small special projects cannot massively impact climate change they can inspire change in the people who will have to live through the consequences of global warming. It is similar to the changing role of zoos. These days their twin role is captive breeding and educating the public about issues such as habitat loss and biodiversity, with an ultimate aim to repopulate a habitat. Restoration of wildflower meadows or wetlands shows what can be done on the same lines in the plant world. The increased invertebrate, bird and mammal populations that follow may also go a little way to countering the decline in species. The bigger the populations the more genetic diversity there will be, hence more scope for adaptations which might allow survival in a world of climate change.

Members of the Shropshire Botanical Society are already only too well aware of the positive effects of being surrounded by plants. The pandemic has forced people with no botanical knowledge to walk locally and to observe seasonal change through the lifecycles of plants. The beneficial effect of spending time outside is well recognised and these walks have helped people to cope with prolonged isolation from their usual human contacts. This could be our opportunity to cash in on this interest and encourage involvement in our society, in organisations like Plantlife, or allow their gardens to harbour plants previously regarded as weeds.

My scientific head tells me that I cannot win, but my heart insists that I cannot use this as a reason to do nothing. I will not be hanging up my billhook or my clipboard just yet. My spirits are raised by contact with plant communities. The *Lysimachia tenella* Bog Pimpernel lawn on Catherton Common last summer was staggeringly beautiful. Finding *Spiranthes spiralis* Autumn Lady's-tresses at Llanymynech in August was another morale booster. My contribution may be microscopic in global terms but it matters to me. I care that the common flowers of my childhood are now often rare or absent. I want them back, together with their pollinators, so I will carry on.

Aquatic macrophytes of Newport Canal SSSI

Mags Cousins

The Shropshire Union and Newport canals fell out of use for the transportation of iron ore and limestone, and were closed in stages during the 20th century. Since this time canals have provided much needed refuges for aquatic flora and fauna, but only where water quality has remained good, and where there is just enough disturbance to prevent closure by succession but not so much that the water becomes too turbid to support sensitive aquatic species.

The section of canal now known as Newport Canal in north Shropshire was re-watered in 1966 and was notified as a Site of Special Scientific Interest in 1986 in recognition of the rich aquatic flora which included five *Potamogeton* Pondweed species, including most notably *Potamogeton friesii* Flat-stalked Pondweed, which is Near Threatened on the GB Red List (Cheffings and Farrell, 2005) and very restricted in Shropshire. *P. friesii* is now confined to disused canals having been lost from natural water bodies elsewhere in Shropshire, such as Crose Mere, towards the end of the 19th century.

The site is about 2 km long and is an isolated spur with a water supply in the east and an out flow to the west, and it abuts disused and dewatered canal at either end (Fig. 1). Since notification the quality of the water supply has declined in Newport Canal with: increased nutrients fuelling algal blooms; an accumulation of silt from the catchment and from unmanaged vegetation; waterfowl numbers held artificially high by feeding; and stocking with bottom-feeding fish favoured for angling such as Carp, which churn up the sediment and increase the turbidity of the water. It is a much loved reserve on the edge of Newport town, used for angling by locals and the towpaths for recreation, walking and exercising dogs.

Fig. 1. View down the canal from the east end

For SSSI condition assessment Natural England use trends in occurrence of positive indicator species, negative indicators and physical attributes such as water clarity, to draw conclusions. Most of the species regarded as positive indicators for condition assessment are also familiar to us as Shropshire axiophytes for the same reasons, being indicative of good quality habitat. The negative indicators selected indicate unfavourable conditions in the particular habitat type(s), in this case nutrient enrichment e.g. filamentous algae.

The decline in abundance of characteristic aquatic plants has been noted at Newport Canal from the early 1990's, but with no actual losses from the list of aquatics mentioned on the SSSI citation, with the possible exception of *P. crispus* Curled Pondweed which was last recorded in 2013 (Fig. 2). *Potamogeton praelongus* Long-stalked Pondweed (NT, GB Red List) was only discovered post notification of the site, in 1995 by Lockton and Whild, and has not been recorded since. Tom Holland (2013) reported a slight improvement in the diversity of positive indicators with 11 submerged species and seven floating species, compared with 2009 when no *Potamogeton* species were found at all.

In recent years considerable time and expense has been devoted to the restoration of the site. The Newport Canal SSSI Recovery Project enabled desilting of the eastern section (east of Fishers Lock) in 2019 and the western section in 2020. It was funded by Natural England and by the European Fund for Rural Development with a Water Environment Grant (£98,000) in a partnership led by Shropshire Wildlife Trust, Telford and Wrekin Council, Shrewsbury and Newport Canal Trust, AUDCO, Telford Angling Association and Honeysuckle Angling Club. Dredging was done with machines by WM Longreach and the sediment spread in two areas nearby in an upper section of Strine Park and in an area of Norbroom Park which was previously

a landfill site. The sediment was held within soil bunds, and allowed to drain and settle.

I was interested to see what effects the dredging might have had and I surveyed Newport Canal SSSI in August 2021, spending about 5hrs throwing a grapnel from the bank every 20–25 metres and made an aquatic macrophyte species list including submerged, floating and marginal plants.

The eastern section has had longer to settle and recolonise since desilting (2019) than the western section (2020) and perhaps unsurprisingly contained more positive indicator species and a greater abundance overall of aquatic macrophytes than the western section. I was delighted to re-find *P. friesii* (Fig. 3a,b), *P. perfoliatus* Perfoliate Pondweed and *Stuckenia (Potamogeton) pectinata* Fennel Pondweed (Fig. 4), although both were quite rare. Overall, it was a mixed picture for the site, with several axiophytes absent but which have been recorded in the past, such as *Potamogeton crispus* Curled Pondweed, *Sagittaria sagittifolia* Arrowhead, *Alisma plantago-aquatica* Water-plantain and *Lemna gibba* Fat Duckweed. Also and perhaps, more surprisingly, a lack of certain species more tolerant of eutrophic conditions such as *Zannichellia palustris* Horned-pondweed and *Typha latifolia* Bulrush and the invasive *Azolla filiculoides* Water Fern which has been known to be abundant here in the past, albeit cyclically.

Filamentous algae was ubiquitous, and in places abundant (Fig. 5, 6), indicating eutrophic conditions persist and the water was turbid with algae and sediment in both east and west sections, but especially the western end where the silt was disturbed by waterfowl in particular. There was still exposed sediment on the banks in the western section, yet to colonise with vegetation since desilting was carried out and therefore rather exposed to the puddling feet of large numbers of waterfowl. The ducks, geese and swans all

Submerged and floating species	**GB Red List**	**SSSI Citation**	**1991**	**1995**	**2004**	**2009**	**2013**	**2021**
Surveyor		**EN**	**EN**	**AL,SW**	**AL,SW**	**ECUS**	**TH**	**MC**
Azolla filiculoides		x	x		x			
Callitriche obtusangula								x
Calltriche sp							x	
Callitriche stagnalis						x		
Ceratophyllum demersum		x	x		x	x	x	x
Elodea canadensis		x		x		x		
Elodea nuttalllii						x	x	x
Hydrochaeris morsus-ranae		x	x	x				x
Lemna gibba							x	
Lemna minor				x	x	x	x	
Lemna minuta						x		x
Lemna trisulca		x		x			x	x
Myriophyllum spicatum		x	x	x	x	x	x	x
Nuphar lutea		x		x	x	x	x	x
Nymphaea alba					x			x
Nymphoides peltata		x		x			x	x
Persicaria amphibia		x			x	x	x	x
Potamogeton crispus		x					x	
Potamogeton friesii	NT	x	x				x	x
Potamogeton natans		x			x		x	x
Stuckenia (Potamogeton) pectinata		x			x		x	x
Potamogeton perfoliatus		x	x		x		x	x
Potamogeton praelongus	NT		x	x				
Ranunculus circinatus		x					x	x
Sparganium erectum		x	x	x	x	x	x	x
Zannichellia palustris							x	

Fig. 2. Submerged and floating species recorded in Newport Canal SSSI (x present, surveyors: EN English Nature, ECUS Ltd Environmental Consultancy, AL Alex Lockton, SW Sarah Whild, MC Mags Cousins, TH Tom Holland)

Fig. 3a, b. *Potamogeton friesii* Flat-stalked Pondweed

Fig. 4. *Stuckenia* (*Potamogeton*) *pectinata* Fennel Pondweed

Fig. 5. A grapnel full of filamentous algae

Fig. 6. The western section with abundant *Lemna* sp and filamentous algae

Fig. 7. A pair of Mute Swans with well grown cygnets

Fig. 8. *Ceratophyllum demersum* Rigid Hornwort

Fig. 9 *Ranunculus circinatus* Fan-leaved Water-crowfoot

Fig. 10 *Potamogeton natans* Broad-leaved Pondweed and *Nymphaea alba* White Water-lily

Fig. 12 *Elodea nuttalli* Nuttall's Waterweed and filamentous algae

Fig 13 Carp

Fig. 11 Weed raking machine on Newport Canal (Andrew Perry)

approached eagerly expecting food, unusually including Moorhen, which don't normally come to rely on such handouts. There was a brood of 12 well grown Mute Swan cygnets with their parents, and these went back to feeding on aquatic macrophytes after it became clear I was not going to be giving them my sandwiches! (Fig. 7).

The clarity and species richness of the eastern section improved heading eastwards with *Ceratophyllum demersum* Rigid Hornwort (Fig. 8) locally abundant and with frequent *Lemna trisulca* Ivy-leaved Duckweed, occasional *Myriophyllum spicatum* Spiked Water-milfoil, *S. pectinata* and *Ranunculus circinatus* Fan-leaved Water-crowfoot (Fig. 9). *P. friesii*, *Callitriche obtusangula* Blunt-fruited Water-starwort and the stonewort *Chara vulgaris* were rare and none of these were observed in the west section. Also a stand of the attractive *Nymphoides peltata* Fringed Water-lily was found in the eastern section only, a long term introduction.

There were several species at the western end that were not present in the east section including a stand of *Potamogeton natans* Broad-leaved Pondweed and *Nymphaea alba* White Water-lily (Fig. 10) including a pink form – a possible introduced cultivar, and rarely amongst them *P. perfoliatus* and *Hydrocharis morsus-ranae* Frogbit. Anglers had already started raking out weed in front of fishing pegs, including abundant *Elodea nuttallii* Nuttall's Waterweed, a naturalised neophyte which perhaps predictably, was the species bouncing back most prolifically and rapidly at this end, along with *Ceratophyllum demersum* Rigid Hornwort. Raking was followed by weed cutting using a machine later that month (see Fig.11). Filamentous algae was less abundant in the western section and included an interesting looking netted algae, possibly of the genus *Hydrodictyon*.

There were more marginal and emergent species at the western end as the canal was slightly more varied in profile and outline, and with wider margins, than the eastern section. Species included *Phragmites australis* Common Reed, frequent *Glyceria maxima* Reed Sweet-grass, *Phalaris arundinacea* Reed Canary-grass and occasional *Butomus umbellatus* Flowering-rush, *Iris pseudacorus* Yellow Iris, *Filipendula ulmaria* Meadowsweet and *Rumex hydrolapathum* Water Dock. A stand of the invasive *Impatiens glandulifera* Himalayan Balsam was noted at the far western edge of the SSSI.

Newport Canal SSSI was also notified for a small area of fen with *Thalictrum flavum* Common Meadow-rue, which is not common in Shropshire. Unfortunately, I could not find this species, nor even the area of fen that the citation was referring to.

At this stage, in the one to two years following the desilting there are species that have yet to be observed again e.g. *P. crispus*, *P. praelongus* and *Z. palustris* and others that are at very low frequency and restricted to one end or the other e.g. *P. perfoliatus* and *P. friesii*. Species most tolerant of eutrophic conditions still dominate e.g. *Lemna minor* Common Duckweed, *C. demersum*, *Elodea nuttalli* and filamentous algae (Fig. 12) and it remains to be seen whether the site will recover the full list of aquatic macrophytes that have been recorded here in the past and at their former abundance.

All the indicators and the reasons for adverse condition previously observed remain current: presence of abundant filamentous algae and other species tolerant of eutrophic conditions; presence of the invasives *E. nuttallii* and *Impatiens glandulifera*; angling pressures shown by the well-used fishing pegs and presence of large Carp (Fig. 13); and numerous waterfowl which are clearly used to being fed by people. Meanwhile actions to reduce diffuse pollution in the catchment are still as relevant as ever to the water supply to the canal, so there is still much to be done.

References

Cheffings, C.M. and Farrell, L., Eds. 2005. Species Status No. 7 The Vascular Plant Red Data List for Great Britain, JNCC, ISSN 1473-0154.

ECUS Ltd. 2009. Botanical survey of Newport Canal SSSI, Shropshire, prepared by Susan Clarke for Natural England, Nov. 2009, Report Ref. 2414.

Holland, T. 2013. Integrated Site Assessment, unpublished report for Natural England.

English Nature, 1992. Newport Canal monitoring report. Internal report

Natural England, 2007. Conservation Objectives and Definitions of Favourable Condition for Designated Features of Interest: Newport Canal SSSI

All photos by Mags Cousins, 2021, unless stated otherwise.

Broomrapes in Shropshire

John Handley

This article follows on from the wonderful talk that Dr Fred Rumsey, Senior Curator at the Natural History Museum, provided in January. He is co-author, along with Chris Thorogood (Deputy Director and Head of Science at the University of Oxford Botanic Gardens) of the Botanical Society of Britain and Ireland's (BSBI) Broomrapes Handbook which was published last year.

Worldwide the Broomrape family (Orobanchaceae) comprises about 90 genera and 1600 species of annual and perennial herbs and shrubs (Schneeweiss, 2013). The current delimitation of the Orobanchaceae follows the disintegration and reassessment of the Scrophulariaceae at the end of the last century (Olmstead *et al*., 2001) as a consequence of molecular data; which we are still coming to terms with!

The Orobanchaceae is the largest of all plant parasitic families and is found on every continent apart from Antarctica. Some species in the family have a profound effect on both natural and agricultural systems e.g. *Rhinanthus minor* Yellow Rattle parasitises grasses, suppressing their dominance, enabling a diversity of other flora to flourish. Meanwhile, *Striga* spp. destroys billions of pounds worth of cereals and legumes in Africa and Asia every year, and yet another species within this family, *Cistanche deserticola* Desert Hyacinth, is being planted as an ancillary crop alongside shelter forests to halt land degradation, to help forestall a growing global crisis (Thorogood, 2021). Some species of *Orobanche* Broomrape, and *Phelipanche*, are also pernicious weeds of various crop species around the Mediterranean Basin and the Middle East.

Broomrapes are renowned for being difficult to identify: plants which are distinct in the field can become brown and featureless when pressed; nevertheless identification of broomrapes in the field should normally be straightforward with careful examination. The BSBI handbook lists sixteen species, three subspecies, four varieties and a single form. Only four species have been recorded in Shropshire, and two of them only once, making the job of confidently identifying them easier.

The Handbook states that "characteristics such as colouration, robustness and hairiness often vary within a population, therefore it is better to examine several specimens and use multiple characters. Important characters to observe include the shape of the corolla, the presence or absence of dark glands on the corolla, the colour and extent of fusion of the stigma lobes, the position, shape and size of the lobes of the upper and lower corolla lips and the presence or absence of glands on their margins. The length, shape and venation on the calyx (though this may vary even on a single plant) and the extent to which segments are fused together (connate) under the flower, the height of insertion of the stamens (i.e. the distance from the base of the corolla tube that the filament becomes free), the position and degree of the stamen hairiness and amount of glands above and below. The nature and extent of the swelling to the base shoot are also useful characters. The presence of bracteoles is an easy way to distinguish *Phelipanche* and *Orobanche* (the former are also typically bluish or purplish-mauve in colour). In fruit the two genera can easily be distinguished as the capsules of *Phelipanche* do not remain fused at the apex as they do in *Orobanche*."

Key to the four species recorded within Shropshire (adapted from Stace, 2019)

1 Flowers with 2 bracteoles, ± similar to the four calyx teeth in axil of each bract, (1 bracteole and 2 calyx teeth each side of the flower); stigmas white or very pale blue; capsule valves free

***Phelipanche ramosa* Hemp Broomrape**

1 Bracteoles 0; each flower with 2–4 toothed calyx (1–2 calyx teeth on each side of flower); stigmas yellow, red or purplish, rarely white; capsule valves coherent distally

2

2 Lower lip of corolla with minute glandular hairs at margins

***Orobanche rapum-genistae* Greater Broomrape**

2 Margins of lower lip of corolla glabrous or with very few glandular hairs, but latter often frequent elsewhere on corolla

3

3 Corolla-tube constricted just behind mouth; lower lip of corolla with acute to subacute lobes; stigmas usually yellow, rarely purplish

***Orobanche hederae* Ivy Broomrape**

3 Corolla-tube not constricted; lower lip of corolla with obtuse to rounded lobes; stigmas usually purplish, rarely yellow

***Orobanche minor* Common Broomrape**

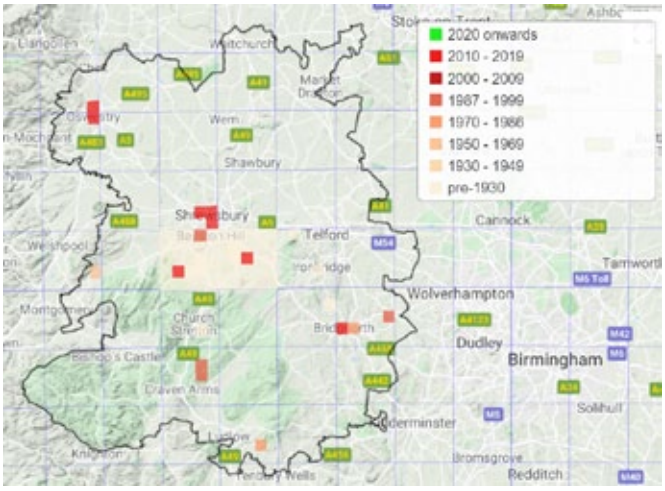


Fig. 1. Location of 39 records for *Orobanche minor* Common Broomrape in Shropshire (SEDN data).

Fig 2 *Orobanche minor* subsp. *minor* Common Broomrape (John Martin)

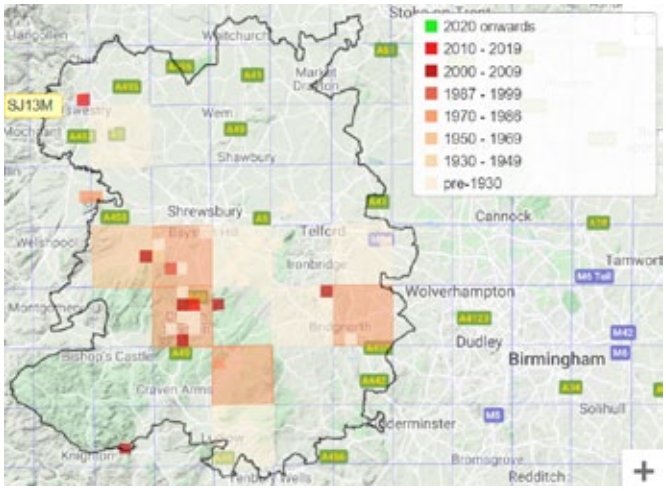


Fig. 3. Location of 67 records for *Orobanche rapum-genistae* Greater Broomrape, in Shropshire (SEDN data).

Fig 4 *Orobanche rapum-genistae* Greater Broomrape (Sarah Whild)

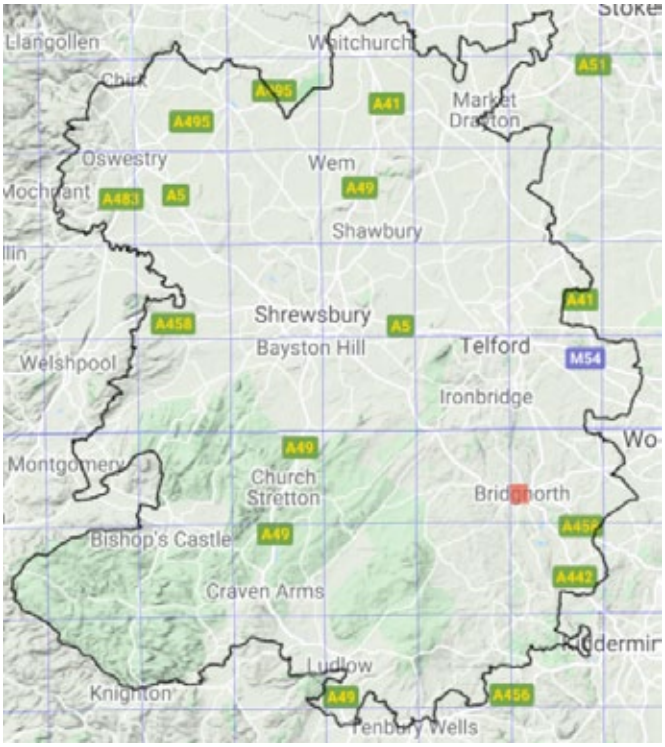


Fig. 5. Location of single record for *Phelipanche ramosa* Branched Broomrape, recorded by Rev. W.R. Crotch, 1860 in Shropshire (SEDN data).

Fig 6 *Phelipanche ramosa* Hemp Broomrape (Mark Duffell)

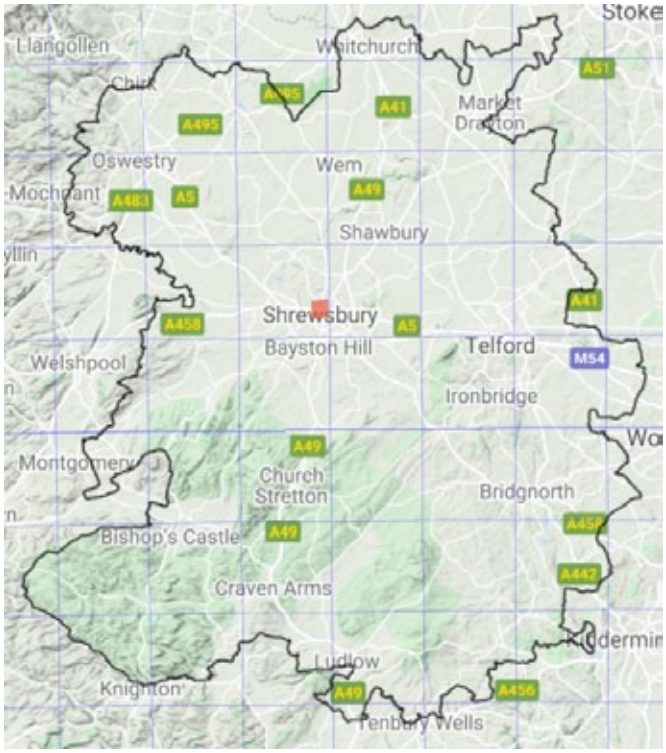


Fig. 7. Location of 1 record for *Orobanche hederae* Ivy Broomrape, recorded by Quentin Groome, 2013 in Shropshire (SEDN data).

Fig 8 *Orobanche hederae* Ivy Broomrape (Mark Duffell)

References

Olmstead, R. G., dePamphilis, C. W., Wolfe, A. D., Young, N. D., Elison, W. J., and Reeves, P. A. (2001). Disintegration of the Scrophulariaceae. Am. J. Bot. 88, 348–362.

Schneeweiss, G. M. (2013). "Phylogenetic relationships and evolutionary trends in Orobanchaceae," in Parasitic Orobanchaceae: Parasitic Mechanisms and Control Strategies, eds D. M. Joel, J. Gressel, and L. J. Musselman (Berlin: Springer), 243–265.

Stace, C. A. (2019). New Flora of the British Isles. C&M Publishing (ed. 4).

Thorogood C. J., Leon C. J., Lei D., Aldughayman M., Huang L-f., Hawkins J. A. (2021). Desert hyacinths: An obscure solution to a global problem? Plants, People, Planet. 00:1– 6.

Thorogood C., Rumsey F. (2021) Broomrapes of Britain & Ireland. BSBI Handbook number 22. ISBN: 9780901158598

Restoring Shropshire's Verges Project - RSVP

Peter Carty, Chair RSVP.

In the last 80 years we have lost 97% of our flower-rich meadows. This figure is likely to be similar for our formerly flower-rich verges. Charles Sinker wrote in the Ecological Flora of the Shropshire Region (1985):

"These flower-lined lanes with their sustained splendour from early spring to the end of autumn are a priceless legacy in the border landscape. We must not let them go lightly."

Road verges have the potential to be long thin flower-rich meadows, and improved ecological management of the highways network offers the exciting possibility of delivering ecological connectivity across the landscape, supporting isolated populations of plant and animal species by allowing movement between populations. This is a fundamental element of the Lawton principle (Lawton *et al.*, 2010).

Flower-rich verge (Rob Rowe).

Historically, grasslands on the verges were leased by the parish to local graziers and hay makers. The "Longacre" was a valued resource and the grassland, managed without fertiliser, supported a rich diversity of flowers and insects.

In modern times we have shifted to the cheapest outsourced management by private companies where cut vegetation is left on the verge to rot, increasing soil fertility at the expense of botanical diversity. Cuttings are often left in situ resulting in tall rank communities of *Arrhenatherum elatius* False Oat-grass and other coarse grasses, with *Anthriscus sylvestris* Cow Parsley and *Heracleum sphondylium* Hogweed being the dominant herbs. Such habitats have value, but our aim is to diversify the flora and increase its ecological value.

In the present-day, verges are for many commuters their main contact with nature. Work to improve nature on these verges creates opportunities for engaging people with nature recovery by building community capacity, engagement and pride in their local environment.

RSVP has been working for three years to bring back the botanical diversity of our verges and we

Roadside flora (Rob Rowe)

are doing this in several ways.

1 Building on the survey work carried out by local botanist Rob Rowe of verges in the Stiperstones to Corndon Landscape Partnership scheme. We have negotiated a late cut with Shropshire Highways department on the best of these which allows the flowers to set seed and leaves the habitat intact for longer in the season. This is especially important for invertebrates.

2 A programme of awareness-raising talks by Janet Cobb, local RSVP volunteer, which have helped support 36 mini verge groups across Shropshire to adopt local verges and set about improving their management using the guidance proposed by Plantlife (2021). See the Good Verge Guide on Plantlife's website.

3 Physically managing demonstration verges where we as volunteers have cut and collected around 10 kms of verge, scarified them and introduced *Rhinanthus minor* Yellow Rattle seed. To this end we own a small two-wheeled tractor. We have also developed a relationship with an interested local contractor who has the capability to cut, collect, scarify and spread seed by machine.

4 Building a relationship with Shropshire Council Highways department to raise awareness and share good practice from other counties, such as Dorset who report significant savings on both capital works and maintenance works by using Plantlife's prescriptions.

5 Encouraging Shropshire Council and the Highways department who are currently considering 25 kms of verge restoration along a major road in Shropshire – watch this space.

6 This year we have funding through the Stepping Stones Project to cut, collect and deliver cuttings to an anaerobic digester. We will accurately document all the costs and benefits and use the data to inform future policy with Shropshire Council.

7 Held a very successful conference in 2021 attended by over 70 people, with a variety of speakers including Herefordshire Meadows Group and Don't Mow Let It Grow campaigner, Rachel Bain from Northern Ireland. See their websites for a great resource of information.

8 Produced signs and a leaflet to promote the work through a small grant facilitated by

Verge after a hay cut (Peter Carty).

Verge mowing machine (Peter Carty)

Road sign in Bishops Castle (Peter Carty)

Caring for Gods Acre.

9 Put out the message that anyone can do something to contribute to restoring Shropshire verges. Every metre counts!

Acknowledgements

In 2021 RSVP is funded (via the Stepping Stones Project) by the Government's Green Recovery Challenge Fund. The fund was developed by Defra and its Arm's-Length Bodies. It is being delivered by The National Lottery Heritage Fund in partnership with Natural England, the Environment Agency and Forestry England.

References

Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.A., Tew, T.E., Varley, J., & Wynne, G.R. 2010. Making Space for Nature: a review of England's wildlife sites and ecological network. Report to Defra.

Plantlife. 2021. The Good Verge Guide. ISBN: 978-1-913283-03-2. https://www.plantlife.org.uk/uk/our-work/publications/good-verge-guide-different-approach-managing-our-waysides-and-verges

Sinker, C.A., Packham, J.R., Trueman, I.C., Oswald, P.H., Perring, F.H., & Prestwood, W.V. 1985. Ecological Flora of the Shropshire Region. Published by Shropshire Wildlife Trust. ISBN: 0-950-8637-1-8.

Identiplant

Sue Dancey

As many members will know, I used to work for the Field Studies Council based at Preston Montford and have long been a member of the Botanical Society of Britain and Ireland (BSBI). My volunteer work as Treasurer and occasional field meeting leader with the Shropshire Botanical Society (SBS) fitted in very nicely with this and I made some important contacts. One of these was through the then Training and Education committee at BSBI where I met Dr Brenda Harold.

In 2012 she was in the process of leading some identification for the Herts and Middlesex Wildlife Trust to help their volunteers get to grips with plant identification. She did this with a series of assignments for them that followed the seasons and covered the most commonly found plant families. This, as we now know is an approach well ahead of its time as it was taught remotely but involved fieldwork – what those in the know call 'blended learning'. In our COVID restricted times many have been learning things in this interactive

"This course is for people who want to develop the skills necessary for botanical recording but who have not had any formal training in botany. It will show how to identify plants systematically and not just by simple recognition, leading to the accuracy that is essential in effective biological recording. Those who complete the course will be able to take full advantage of field meetings and more specialised courses, as well as being confident tackling unknown plants themselves."

Brenda Harold

Fig. 1. Dr Brenda Harold at our own Llanymynech Rocks (Sue Dancey)

and practical way. Students were taken through simple steps to help them recognise major plant families, use identification keys and to go out to find their own examples. BSBI were impressed with the worksheets and course content and still remain involved, administering an overview on the content as things are ever changing in botanical classification. BSBI may indeed be running the course from 2023 onwards.

I persuaded the FSC to help Brenda expand the course. In partnership with the FSC Head Office administration, who enable students to enlist and tutors to be paid, and the help of a retired maths teacher leading the IT, Brenda developed a modular approach via an on-line learning system. In 2013 Identiplant had formally begun!

In 2021, as a result of restructuring what it could offer for on-line courses, FSC withdrew from the partnership. By this time, after 8 years of being tutors, many of us did not want to stop and the enquiries for enrolment remained high. So those of us who were tutors went out on our own and delivered the course by emailing assignments rather than using a web based system. It worked, and we are continuing with BSBI support.

I thought I should tell Shropshire Botanical Society about it as it is being delivered in loads of counties. Our members might be interested themselves, either as students or tutors, or perhaps be able to

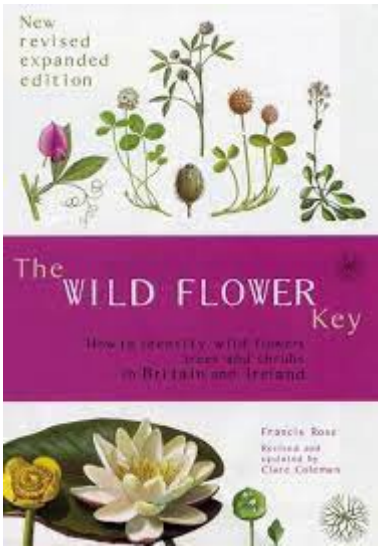
help point others towards the course as it grows in the future.

There are 15 modules which are updated and amended slightly each year with learning assignments for students every two weeks. Each student will have a tutor assigned to them and each tutor is supported by a central 'HUB'. In this case, the SBS committee have agreed that our Society can act as a HUB and I will be fielding the enquiries and supporting the tutors.

The Modules are:

1 Classification and Names

An overview, which introduces students to naming plants and classification, including the recognition



that plant names change. This was written around The Wild Flower Key (Francis Rose), which despite some outdated taxonomy, has great keys and images. The classification lessons also include up to date references to the botanical bible - New Flora of the British Isles by Clive Stace.

2 Terminology

Without understanding leaf shape, the parts of a flower and the structure of plants, it is difficult to find your way around a serious botanical guide. This module sets you on the right track.

3 Keys

The way to help run down your plant and critically determine the species. It really helps if you build on the terminology and classification modules to find your way to the right place in the key early on.

Then comes the fun bit – over 11 flower families covering the plant species you are likely to find. Each of these has an element of fieldwork including pressing a specimen, describing common family features, comparing similar species and understanding why the taxonomy has changed.

Fig. 2. Studying Rose in the field (Sue Dancey)

Plant Families covered:

The Cabbage Family – Brassicaceae

The Buttercup Family – Ranunculaceae

The Lily Family – Liliaceae

The Campion Family – Caryophyllaceae

The Carrot Family – Apiaceae

The Pea Family – Fabaceae

The Rose Family – Rosaceae

The Deadnettle Family – Lamiaceae

The Figwort Family – Scrophulariaceae

Some Small Families and voucher specimens

The Daisy Family – Asteraceae

The Orchid Family – Orchidaceae

If any SBS members are interested in becoming students or tutors – please get in contact with me. I can process some applications for students and would love to chat with anyone who might consider tutoring on the course. Please see www.identiplant.co.uk for more details.

Please note that the current fees are £150 per student - £100 of which would normally go to the tutor and the remainder to the SBS, but for this year it has been agreed that all of the fee will go to the SBS [thank you Sue! – Ed.]

Fig. 3. Student work example for a small plant family (Sue Dancey).png

Fig. *4.* Distinctive flower shape and what other features might identify this family? (Sue Dancey)

Fig. 5. Which family was examined for this plant? (Sue Dancey)